

## **REMARKS**

### **I. Introduction**

By the present Amendment, claims 2-4 have been amended, and claim 1 canceled. Accordingly, claims 2-5 remain pending in the application.

### **II. Office Action Summary**

In the Office Action of November 3, 2005, claim 1 was rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,049,307 issued to Lim in view of U.S. Patent No. 6,463,265 issued to Yun. Claim 2 was rejected under 35 USC §103(a) as being unpatentable over Lim in view of U.S. Patent Application No. 2002/0122465 issued to Agee, et al. ("Agee"), and further in view of U.S. Patent No. 6,311,075 issued to Bevan, et al. ("Bevan"). Claim 3 was rejected under 35 USC §103(a) as being unpatentable over Lim in view of Agee and Bevin, and further in view of Yun. These rejections are respectfully traversed.

The Examiner's indication that claims 4 and 5 would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims, is noted with appreciation.

### **III. Rejections under 35 USC §103**

Claim 1 was rejected under 35 USC §103(a) as being unpatentable over Lim in view of Yun.

The cancellation of claim 1 renders this particular ground of rejection moot.

Claim 2 was rejected under 35 USC §103(a) as being unpatentable over Lim in view of Agee and further in view of Bevin. Regarding this rejection, the Office Action indicates that Lim discloses a transmission control method for a transmit/receive station that includes most of the steps recited in independent claim

2. The Office Action admits, however, that Lim fails to teach the provision of a null in a direction of a second uplink signal transmitted from a remote station other than said one of the remote station received using said antenna array. The Office Action alleges that Agee discloses providing the null of a second uplink from a beam B other than remote A using beam A in order to reduce interference from adjacent signals. The Office Action further admits that the combination of Lim and Agee still fails to disclose that the base station which communicates with a plurality of mobile stations via an array antenna uses a code-division multiple access system (CDMA). Bevin is relied upon for teaching a CDMA base station which communicates with a plurality of mobile stations using a base station antenna array. Applicants respectfully disagree.

As amended, independent claim 2 defines a transmission control method for a base station which communicates with a plurality of mobile stations using an array antenna. The method comprises the steps of:

receiving, using said array antenna, a plurality of uplink signals transmitted from said plurality of mobile stations;

providing a downlink array weight for transmitting downlink signals to one of said plurality of mobile stations such that said downlink array weight represents an antenna pattern having a maximum beam in a direction of said one of the plurality of mobile stations which transmitted a first uplink signal received using said array antenna, and having a null in a direction of a mobile station other than said one of the plurality of mobile stations which transmitted a second uplink signal received using said array antenna,

wherein said downlink array weight is provided according to transmission power control information for a plurality of downlinks to said plurality of mobile stations.

According to independent claim 2, the array antenna receives a plurality of uplink signals transmitted from the mobile stations. A downlink array weight for transmitting downlink signals to one of the mobile stations is provided such that the downlink array weight represents an antenna pattern having a maximum beam in a

direction of the particular mobile station which transmitted a first uplink signal to the array antenna. The downlink array weight also represents an antenna pattern having a null in a direction of a mobile station other than the particular mobile station which transmitted a second uplink signal to the array antenna. Furthermore, the downlink array weight is provided according to transmission power control information for a plurality of downlinks to the plural mobile stations.

While the Office Action alleges that the combination of Lim, Agee, and Bevin discloses the features of the claimed invention, Applicants' review of the cited references has not revealed any disclosure or suggestion for all of the features set forth in independent claim 2. For example, Lim discloses an adaptive phased array antenna that uses a weight memory unit. The array antenna uses a fixed beam pattern which determines the beam to use for a particular transmission and retrieves the necessary array weight from the weight memory unit. Lim, however, does not appear to disclose an antenna pattern having a null in the direction of a particular mobile station. This is to be expected because Lim appears to utilize fixed beam pattern nulls to be focused in a desired direction.

Agee discloses a discrete multi-tone stacked-carrier spread spectrum communication method that is based on frequency domain spreading of a baseband signal by a set of superimposed carrier waves. While Agee mentions the use of null-steering, there does not appear to be any disclosure or suggestion of how one would specifically achieve downlink null steering as recited in the claims. Furthermore, Agee does not appear to disclose or suggest determining the array weight according to power control information. Likewise, Bevin does not appear to disclose or suggest downlink null steering or determination of the array weight according to power control information.

It is therefore respectfully submitted that independent claim 2 is allowable over the art of record.

Claims 3-5 depend from independent claim 2, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 2. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

#### **IV. Conclusion**


For the reasons stated above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a Notice of Allowance is believed in order, and courteously solicited.

If the Examiner believes that there are any matters which can be resolved by way of either a personal or telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

**AUTHORIZATION**

Applicants request any shortage or excess in fees in connection with the filing of this paper, including extension of time fees, and for which no other form of payment is offered, be charged or credited to Deposit Account No. 01-2135 (Case: 520.37431CX1).

Respectfully submitted,  
ANTONELLI, TERRY, STOUT & KRAUS, LLP.

  
Leonid D. Thenor  
Registration No. 39,397

LDT/vvr  
1300 N. Seventeenth Street  
Suite 1800  
Arlington, Virginia 22209  
Tel: 703-312-6600  
Fax: 703-312-6666

Dated: February 3, 2006